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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,090	07/08/2003	Dougas M. Baney	10020766-1	9657

7590 07/03/2007

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Intellectual Property Administration
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EXAMINER	
CHIEM, DINH D	
ART UNIT	PAPER NUMBER
2883	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/616,090	BANEY, DOUGAS M.	
	Examiner	Art Unit	
	Erin D. Chiem	2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 5-10* is/are rejected.

7)☒ Claim(s) *5* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This office action is in response to the amendment filed on April 13, 200. Currently claims 1-3, and 5-10 are pending.

Claim Objections

Claim 5 is objected to because of the following informalities: the scope of the claimed invention cannot be determined since claim 5 is depending on a canceled claim. Appropriate correction is required. For examination purposes, examiner shall consider the limitations of claim 5 is depending on claim 1.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Bjarklev et al. (US 6,972,894 B2) hereinafter "Bjarklev."

Claim 1: Bjarklev discloses in Figs. 1, 2, 4, 5, and 9 an optical waveguide absorption cell (Fig. 9), comprising: a holey waveguide (94), also known as photonic bandgap fiber or photonic crystal fiber, a first terminus of said holey waveguide coupled to a first terminus of said first waveguide and said holey waveguide comprising voids filled with a known

selective absorption medium (col. 13, lines 22-25), and a cladding region surrounding said core and having a lower index of refraction than said core; and a second waveguide, wherein a first terminus of said second waveguide is coupled to a second terminus of said holey waveguide (93).

Claim 6: With Bjarlev et mitation wherein the waveguide absorption cell comprises of a first waveguide cable, a holey waveguide cable, and a second waveguide cable is clearly understood as an inference feature in Bjarklev disclosure of a device used in high capacity transmission system (See Background of the Invention).

Claim Rejections - 35 USC § 103

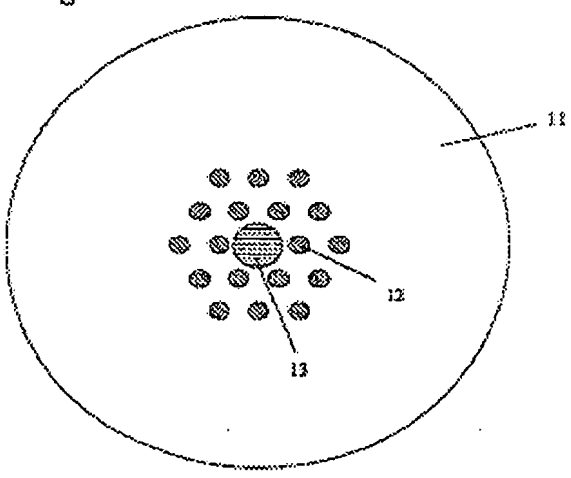
The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bjarklev in view of Russell et al. (US 6,631,234 B1) hereinafter "Russell."

Bjarklev discloses in Figs. 1, 2, 4, 5, and 9 an optical waveguide absorption cell (Fig. 9), comprising: a first wave-guide ((92); a holey waveguide (94) filled with a known selective absorption medium (col. 5, lines 30-36), wherein

Fig. 1



a first terminus of said holey waveguide (94) is coupled to a first terminus of said first waveguide; and a second waveguide (93), wherein a first terminus of said second waveguide is coupled to a second terminus of said holey waveguide.

However Bjarklev does not explicitly disclose the first terminus of said holey waveguide is coupled to the first terminus of the first waveguide utilizing a fusion splice (claim 2) or a light-transmitting adhesive (claim 3).

Russell discloses fusion splicing a standard waveguide with a holey waveguide by means of fusion splicing and the conventional adhesive (See col. 3, lines 33-50) for the purpose of coupling a standard waveguide with a holey waveguide and maintains the fundamental mode.

Since Bjarklev and Russell are both from the same field of endeavor, the purpose disclosed by Russell would have been recognized in the pertinent art or Bjarklev.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to recognize the fusion splicing technique or using an adhesive as disclosed by Russell would be applicable in the manufacturing of the absorption cell of Bjarklev. **The motivation** for employing fusion splicing or adhesive as the coupling means in the absorption cell is to improve coupling efficiency at the coupled points.

Claims 5, and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bjarklev in view of Levenson (US 6,496,634 B1) hereinafter "Levenson."

Bjarklev discloses in Figs. 1, 2, 4, 5, and 9 an optical waveguide absorption cell (Fig. 9), comprising: a primary core; a secondary core that includes said primary core; a plurality of voids formed in said primary core a first wave-guide ((92); a holey waveguide (94) filled with a known

selective absorption medium (col. 5, lines 30-36), wherein a first terminus of said holey waveguide (94) is coupled to a first terminus of said first waveguide; and a second waveguide (93), wherein a first terminus of said second waveguide is coupled to a second terminus of said holey waveguide. The holey waveguide comprises a core (11); and a plurality of voids formed in said core (12) (See for example Fig. 1).

Claim 9: Bjarklev discloses a light source is adapted to couple with the holey waveguide (81).

Claim 10: Bjarklev incorporated the disclosure of Stubkjaer et al. teaching a wavelength opto-electronic converter comprising of a detector (col. 1, line 29).

However, Bjarklev does not disclose the holey waveguide further comprises a fill hole formed in the core, wherein the fill hole is an opening in the core that is not at the first terminus of the holey waveguide and is not at the second terminus of the holey waveguide, the fill hole adapted to introduce the known selective absorption medium into the plurality of voids.

Levenson discloses the method of filling the holey waveguide with the known selective absorption medium through capillary action from the holes in the cladding (Fig. 9 and col. 4, lines 1-6) for the purpose of controlling the refractive index of the waveguide. Furthermore, Levenson teaches that the same filling method in the fluid phase can fill the voids in a holey or photonic crystal fiber (col. 7, lines 49-55).

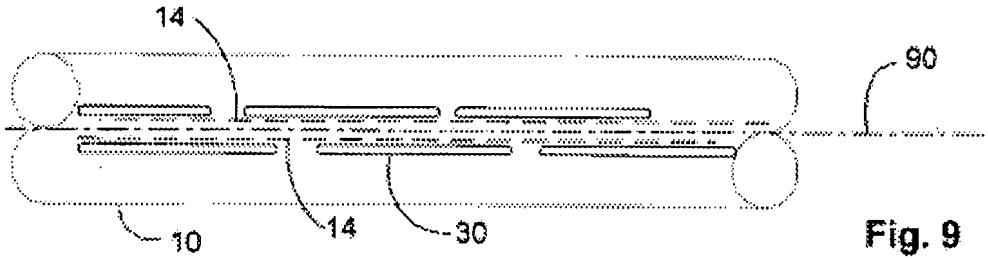


Fig. 9

Since Bjarklev and Levenson are both from the same field of endeavor, the purpose disclosed by Levenson would have been recognized in the pertinent art or Bjarklev.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to recognize the filling technique through capillary action, as disclosed by Levenson, would be applicable in the manufacturing of the absorption cell of Bjarklev. **The motivation** for employing the filling method as taught by Levenson by immersing the holey waveguide in a gas or liquid and allows the medium to absorb into the holes through capillary action is a cost effective method versus, for example, vacuum impregnation.

Response to Arguments

Applicant's arguments filed June 13, 2006 have been fully considered but they are not persuasive.

Applicant's ONLY substantial argument are:

- Applicant cannot find any passage in Bjarklev reference that teaches optically non-linear material having a selective absorption medium, therefore Bjarklev does not teach the claim limitation of claim 1

- Levenson teaches fill holes extend axially and not radially, therefore, Bajarklev in combination with Levenson did not prove a prima facie case of obviousness.
- Levenson teaches fill holes at the cut end of the fiber, thus is not supplying the deficient claim limitation "at a location that is not at a terminus of said holey fiber optic cable" not taught by Bjarklev.

Examiner's responses are:

- Examiner provides here the passage that Applicant was not able to find which recites the nonlinear material having a selective absorption medium, please see column 13, lines 22-25. The medium taught by Bjarklev is a dye and fundamental optics teaches that the visible color of the dye is the only reflected color (wavelength) and the non-visible colors are absorbed by the dye.
- Levenson teaches the fill hole having two dimension, axial and radial; the width of the fill hole extends axially along the circumference of the cylindrical fiber.
- Levenson teaches fill holes that are near the cut end of the fiber. Fig. 9 clearly shows that the fill hole boundaries terminates before the cut end of the fiber.

The rejection above has been modified to clearly cite the amended limitations which are taught by Bjarklev and Levenson. Examiner also provided responses to the germane arguments above. Therefore, Examiner maintains the rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D. Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Erin D Chiem
Examiner
Art Unit 2883

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